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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,912	03/26/2004	Lih-Ping Li	67,200-1256	9403

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EXAMINER	
MARKHAM, WESLEY D	
ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,912	LI ET AL.	
	Examiner	Art Unit	
	Wesley D. Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the applicant on 1/14/2005 (with a certificate of mailing dated 1/10/2005) in which (1) the abstract of the disclosure was amended, and (2) Claims 1, 5, 6, and 10 – 13 were amended. **Claims 1 – 13** remain pending in U.S. Application Serial No. 10/810,912, and an Office action on the merits follows.

Drawings

2. The formal drawings (2 sheets, 3 figures) filed by the applicant on 3/26/2004 are acknowledged and approved by the examiner.

Specification

3. The objection to the abstract of the disclosure, set forth in paragraph 2 of the previous Office action (i.e., the non-final Office action mailed on 9/9/2004), is withdrawn in light of the acceptable abstract submitted by the applicant on 1/14/2005.

Claim Objections

4. The objection to Claim 7 set forth in paragraph 3 of the previous Office action is withdrawn in light of the applicant's amendment to Claim 6 to recite that the

seasoning film generally comprise an oxide-based material instead of silicon dioxide, which is recited in Claim 7.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. The rejection of Claims 11 – 13 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraphs 5 – 6 of the previous Office action, is withdrawn in light of the applicant's amendment to Claims 11 – 13 so that the aforementioned claims depend from Claim 10 instead of non-existent Claim 17.

Claim Observations

7. Please note that (1) the obviousness-type double patenting rejections based on USPNs 6,479,098 (Yoo et al.) and 6,042,887 (Chien et al.), (2) the 35 U.S.C. 102 rejections based on Chien et al., Yoo et al., Qian et al., Rossman et al., and Gupta, and (3) the 35 U.S.C. 103 rejections based on Gupta in various combinations with other references are withdrawn in light of the applicant's amendments to add a variety of limitations (e.g., a seasoning film thickness of from about 2 microns to about 10 microns, a chamber pressure of from about 10 Torr to about 760 Torr, a

temperature of from about 500°C to about 700°C (Claims 5 and 10 only), and a process time of from about 0.5 minutes to about 10 minutes (Claim 10 only)) to independent Claims 1, 5, and 10.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chien et al. (USPN 6,042,887).

11. Regarding **Claims 1 and 2**, Chien et al. teaches a method of seasoning a process chamber having interior surfaces, the method comprising the steps of (1) cleaning

the process chamber, and (2) providing a seasoning film "11" on the interior surfaces of the process chamber by introducing precursor gases into the process chamber, wherein the seasoning film comprises an oxide-based material (Figure 3; Col.1, lines 8 – 16 and 59 – 67, Col.2, lines 1 – 11 and 25 – 37, Col.3, lines 3 – 6 and 59 – 67, Col.4, lines 1 – 33, and Col.6, lines 29 – 35). The precursor gases are introduced into the chamber at a chamber pressure of 55 to 65 Torr (Col.4, lines 31 – 32), a pressure that is within the applicant's claimed range of "about 10 Torr to about 760 Torr". Chien et al. does not explicitly teach that the seasoning film has a thickness of from about 2 microns to about 10 microns. However, Chien et al. does teach that the seasoning film preferably has a thickness of greater than 2000 A (200 nm), or greater than 2500 A (250 nm) (Col.3, "Element 11" in the table; Col.4, lines 19 – 20, and Claims 5 and 13). This range of seasoning film thickness values taught by Chien et al. encompasses the applicant's claimed range of from about 2 microns to about 10 microns. Additionally, Chien et al. teaches that the seasoning film thickness is a result-effective variable that influences the etch rate uniformity (i.e., the thicker the film, the better the etch rate uniformity) (Col.7, TABLE and lines 16 – 17). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the seasoning film thickness in the process of Chien et al. as a result-effective variable through routine experimentation in order to ensure that a good etch rate uniformity is obtained, as desired by Chien et al. One of ordinary skill in the art would have optimized the seasoning film thickness to any value greater than 2000 A (e.g., about 2 microns to about 10 microns, as claimed by the applicant) because Chien et al.

explicitly teaches that such a seasoning film thickness is preferred in the disclosed process. Please note that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of obviousness (*In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-1383 (Fed. Cir. 2003)), and where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (*In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

12. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Rajagopalan et al. (USPN 6,274,058), Hander et al. (USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1).

13. Regarding **Claims 1 and 2**, Gupta teaches a method of seasoning a process chamber having interior surfaces, the method comprising the steps of (1) cleaning the process chamber, and (2) providing a seasoning film on the interior surfaces of the process chamber by introducing precursor gases into the process chamber, wherein the seasoning film comprises an oxide-based material (Abstract, Figures 1 and 4; Col.1, lines 13 – 67, Col.2, lines 1 – 20, 35 – 37, and 54 – 64, Col.3, lines 1 – 67, Col.4, lines 1 – 38, Col.8, lines 15 – 67, and Col.9, lines 1 – 3). Gupta does not explicitly teach that (1) the seasoning film has a thickness of from about 2 microns to about 10 microns, and (2) the chamber pressure is from about 10 Torr to about 760 Torr. Specifically, Gupta is silent regarding the specific seasoning film thickness and

the chamber pressure used in the seasoning step. However, Rajagopalan et al. teaches that, when depositing a seasoning film on the interior surfaces of a process chamber (i.e., a process analogous to that of Gupta), the particular thickness of the seasoning film will vary depending on the chamber and the type of film being deposited (Col.13, lines 66 – 67, Col.14, lines 1 – 28). Hander et al. teaches that it was known in the art at the time of the applicant's invention to season a process chamber by depositing a seasoning film having a thickness of, for example, approximately 1 to 3 microns, or between approximately 10 and 30 microns, on the interior surfaces of the chamber, and the thickness of the seasoning film is determined, at least in part, by whether the chamber has been freshly wet-cleaned (i.e., a thicker seasoning film for initial conditioning) or whether the chamber has simply been plasma cleaned or idling (i.e., a thinner seasoning film for periodic conditioning) (Abstract, Col.2, lines 26 – 40, Col.3, lines 1 – 44, Col.4, lines 22 – 45). The conventional seasoning film thickness values taught by Hander et al. overlap or lie inside the applicant's claimed range of about 2 microns to about 10 microns. Further, Murugesh et al. teaches that, in the art of depositing a seasoning film on the inner surfaces of a process chamber in order to reduce contamination in the chamber (i.e., a process analogous to that of Gupta), it is desirable to increase the seasoning time up to about 110 seconds (almost 2 minutes) so that a relatively thick seasoning film is deposited on the interior of the chamber, thereby isolating the chamber walls from the substrate and lowering the metal contamination by about one order of magnitude (Abstract, Cols.1 – 3, Col.4, lines 1 – 4, Col.5, lines 1 – 44,

Col.9, lines 54 – 55, Col.10, lines 32 – 43). A longer time may be employed, but if the seasoning film becomes too thick, it may undesirably flake off (Col.3, lines 44 – 48). In other words, Murugesh et al. teaches that the seasoning film deposition time and the associated seasoning film thickness (longer deposition time = greater thickness) are result-effective variables that must be balanced to minimize chamber contamination, which is achieved by increasing the deposition time (e.g., to 110 seconds) / film thickness, while avoiding the deposition of an overly thick film that may flake off. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the seasoning film thickness (and the seasoning film deposition time) as a result-effective variable through routine experimentation in order to form a seasoning film that advantageously minimizes chamber contamination, as desired by Gupta. One of ordinary skill in the art would have optimized the seasoning film thickness to have a value within the applicant's claimed range (e.g., about 2 microns to about 10 microns) because Hander et al. teaches that CVD chamber seasoning films having such a thickness are operable. The exact thickness of the seasoning film would, of course, depend on a variety of factors, including (1) the type of chamber, and (2) the type of film being deposited, as taught by Rajagopalan et al. Regarding the chamber pressure limitation, Ying et al. teaches that, in the art of depositing a seasoning film on the inner surfaces of a chamber, process variables for performing the chamber seasoning including gas flow rates, process chamber pressure, process chamber temperature, RF (plasma) power levels, etc. can be selected to achieve optimal chamber seasoning, and such optimization can be

performed with minimal experimentation (paragraph [0079]). In other words, Ying et al. teaches that chamber seasoning process parameters such as chamber pressure and temperature are result-effective variables that influence the effectiveness of the chamber seasoning process. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the chamber seasoning process parameters such as chamber pressure and temperature in the process of Gupta as result-effective variables through routine experimentation, as taught by Ying et al. Since Gupta generally teaches that the seasoning step can be carried out according to the same process recipe as the subsequent deposition step (Col.8, lines 53 – 60), and a chamber pressure of about 20 Torr and a chamber temperature of about 500° C are used in the deposition step of Gupta (Col.9, lines 8 – 31), the optimization of the chamber pressure and temperature of the seasoning step would have been reasonably expected to include the aforementioned values (20 Torr and 500° C), which fall within the applicant's claimed range. The exact pressure and temperature would, of course, be expected to depend on a variety of factors, including the type of chamber being seasoned and the type of seasoning film being deposited.

14. Claims 5 – 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Yoo et al. (USPN 6,479,098 B1), further in view of Rajagopalan et al. (USPN 6,274,058), Hander et al. (USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1).

15. Regarding independent **Claims 5 and 10**, Gupta teaches a method of seasoning a CVD chamber having interior surfaces and a gas distribution plate "11" (Figure 1, Col.3, lines 51 – 54, Col.4, lines 29 – 30), the method comprising the steps of (1) cleaning the chamber, and (2) providing a seasoning film on the interior surfaces of the chamber by introducing seasoning film precursor gases into the chamber (Abstract, Figures 1 and 4; Col.1, lines 13 – 67, Col.2, lines 1 – 20, 35 – 37, and 54 – 64, Col.3, lines 1 – 67, Col.4, lines 1 – 38, Col.8, lines 15 – 67, and Col.9, lines 1 – 3). Gupta does not explicitly teach that the gas distribution plate "11" is coated with the seasoning film. However, the goal of Gupta in depositing the seasoning film is to block / reduce possible contamination (e.g., due to particles and residual fluorine in the chamber) in the chamber (Col.1, lines 36 – 62, Col.2, lines 13 – 15 and 54 – 64, Col.8, lines 26 – 31 and 64 – 67). Gupta teaches that this is done by depositing the seasoning film onto components and internal surfaces of the chamber forming the processing region (Col.1, lines 54 – 62), or in other words, the chamber components that are exposed to the process environment (Col.8, lines 53 – 57). Yoo et al. teaches an analogous method of depositing a seasoning film on the interior components / surfaces of a CVD chamber and teaches that the seasoning film should be deposited over all of the chamber processing region components, including the gas inlets, because all of the aforementioned components, including the gas inlets, are sources of contaminant material that contaminate the processing environment and detrimentally affect the substrates processed therein (Col.1, lines 33 – 35 and 47 – 67, Col.2, lines 1 – 21, and Col.3, lines 44 – 67). Therefore, it

would have been obvious to one of ordinary skill in the art to deposit the seasoning film of Gupta on all of the internal surfaces of the CVD chamber that form the processing region, including the gas distribution plate "11", with the reasonable expectation of successfully and advantageously preventing undesired contamination in the chamber that originates from any of the internal surfaces of the CVD chamber, including the gas distribution plate, as taught by Yoo et al. In other words, one of ordinary skill in the art would have been motivated to deposit the seasoning film onto the gas distribution plate in the process / apparatus of Gupta in order to ensure that no contamination originates from the gas distribution plate, which forms part of the processing region on which the seasoning film is advantageously deposited in Gupta. Gupta does not explicitly teach that (1) the seasoning film has a thickness of from about 2 microns to about 10 microns, (2) the chamber pressure is from about 10 Torr to about 760 Torr, (3) the temperature is from about 500° C to about 700° C, and (4) the process time is from about 0.5 minutes to about 10 minutes. However, such limitations would have been obvious to one of ordinary skill in the art in view of the teachings of Rajagopalan et al., Hander et al., Murugesh et al., and Ying et al. for the reasons set forth in paragraph 13 above. Regarding **Claims 6, 7, and 11**, Gupta also teaches that the seasoning film comprises an oxide-based material such as silicon dioxide (Col.8, lines 53 – 57).

16. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Rajagopalan et al. (USPN 6,274,058), Hander et al.

(USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1), further in view of Xi et al. (USPN 6,323,119 B1) or Rossman et al. (USPN 6,121,161).

17. The combination of Gupta, Rajagopalan et al., Hander et al., Murugesh et al., and Ying et al. teaches all the limitations of **Claim 3** as set forth above in paragraph 13, except for a method wherein the seasoning film comprises silicon nitride. Specifically, Gupta teaches a silicon oxide seasoning film (Col.8, lines 53 – 58). Xi et al. teaches that, in the art of depositing seasoning films on the inner surfaces of a CVD reaction chamber to prevent contamination of the processing environment, the seasoning film can be FSG (i.e., fluorosilicate glass, or a silicon oxide based material) or silicon nitride (Col.3, lines 12 – 22, Col.4, lines 27 – 67, Col.11, lines 58 – 67, and Col.12, lines 1 – 16). In other words, Xi et al. teaches the functional equivalence of a silicon nitride seasoning film and a glass (i.e., oxide) based seasoning film, as taught by Gupta. Rossman et al. teaches that, in the art of depositing seasoning films on the inner surfaces of a CVD reaction chamber to prevent contamination of the processing environment, a silicon nitride seasoning film is preferable to a conventional seasoning film such as silicon oxide (as taught by Gupta) because the silicon nitride film has a lower diffusion rate for typical contaminants in relation to silicon oxide (Col.2, lines 25 – 63, Col.3, lines 16 – 32, Col.8, lines 54 – 67, and Col.9, lines 17 – 21). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a silicon nitride seasoning film as opposed to a silicon oxide seasoning film in the process of Gupta with, at the very least, the

reasonable expectation of success and obtaining similar results (i.e., because Xi et al. teaches the functional equivalence of various seasoning films, including silicon nitride, in preventing CVD chamber contamination), or with the reasonable expectation of obtaining the advantages of using a silicon nitride seasoning film (as taught by Rossman et al.) as opposed to a silicon oxide seasoning film, such as more effectively preventing chamber contamination due to the low diffusion of contaminants through the silicon nitride seasoning film.

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Rajagopalan et al. (USPN 6,274,058), Hander et al. (USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1), further in view of Boeglin (USPN 5,061,514).

19. The combination of Gupta, Rajagopalan et al., Hander et al., Murugesh et al., and Ying et al. teaches all the limitations of **Claim 4** as set forth above in paragraph 13, except for a method wherein the seasoning film comprises silicon carbide. Specifically, Gupta teaches a silicon oxide seasoning film (Col.8, lines 53 – 58). However, Gupta also teaches that the seasoning step will typically be carried out according to the same process gas recipe to be used in a subsequently deposited PECVD layer (Col.8, lines 58 – 67). Boeglin teaches that it was known in the semiconductor / microelectronics art (i.e., the art of Gupta) at the time of the applicant's invention to deposit a silicon carbide layer on a wafer by plasma CVD (i.e., PECVD) (Abstract, Col.1, lines 17 – 24, Col.2, lines 47 – 49, and Col.3, lines 1

– 12 and 55 – 66). Boeglin further teaches that, in a preferred embodiment, the reaction chamber is prepared for film (i.e., silicon carbide) deposition by the preliminary step of passivating the chamber with a silicon carbide coating of the invention (Col.3, lines 12 – 16). Therefore, it would have been obvious to one of ordinary skill in the art to deposit a silicon carbide seasoning film, as opposed to a silicon oxide seasoning film (as taught by Gupta), on the occasion that a silicon carbide film (as opposed to a silicon oxide film) is to be subsequently deposited on a substrate / wafer in the plasma CVD chamber of Gupta because (1) Gupta teaches that the seasoning step will typically be carried out according to the same process gas recipe that is used in a subsequently deposited PECVD layer, and (2) Boeglin supports this teaching by specifically teaching that, prior to depositing a silicon carbide layer on a semiconductor substrate by PECVD in a chamber, the chamber should be coated with the same silicon carbide layer.

20. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Yoo et al. (USPN 6,479,098 B1), further in view of Rajagopalan et al. (USPN 6,274,058), Hander et al. (USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1), and in further view of Xi et al. (USPN 6,323,119 B1) or Rossman et al. (USPN 6,121,161).

21. The combination of Gupta, Yoo et al., Rajagopalan et al., Hander et al., Murugesh et al., and Ying et al. teaches all the limitations of **Claims 8 and 12** as set forth above in paragraph 15, except for a method wherein the seasoning film comprises silicon

nitride. However, depositing a silicon nitride seasoning film would have been obvious to one of ordinary skill in the art in light of the teachings of Xi et al. and/or Rossman et al. for the reasons set forth in paragraph 17 above.

22. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (USPN 5,824,375) in view of Yoo et al. (USPN 6,479,098 B1), further in view of Rajagopalan et al. (USPN 6,274,058), Hander et al. (USPN 6,403,501), Murugesh et al. (USPN 5,811,356), and Ying et al. (US 2003/0013314 A1), and in further view of Boeglin (USPN 5,061,514).

23. The combination of Gupta, Yoo et al., Rajagopalan et al., Hander et al., Murugesh et al., and Ying et al. teaches all the limitations of **Claims 9 and 13** as set forth above in paragraph 15, except for a method wherein the seasoning film comprises silicon carbide. However, depositing a silicon carbide seasoning film would have been obvious to one of ordinary skill in the art in light of the teachings of Boeglin et al. for the reasons set forth in paragraph 19 above.

Response to Arguments

24. Applicant's arguments filed on 1/14/2005 have been fully considered but they are not persuasive. Specifically, the applicant's arguments are moot in view of the new grounds of rejections set forth above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sahin et al. (US 2003/0220708 A1) teaches that increasing the seasoning film thickness can reduce the defect density of processed substrates (paragraph [0278]).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wesley D Markham
Examiner
Art Unit 1762

WDM

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER